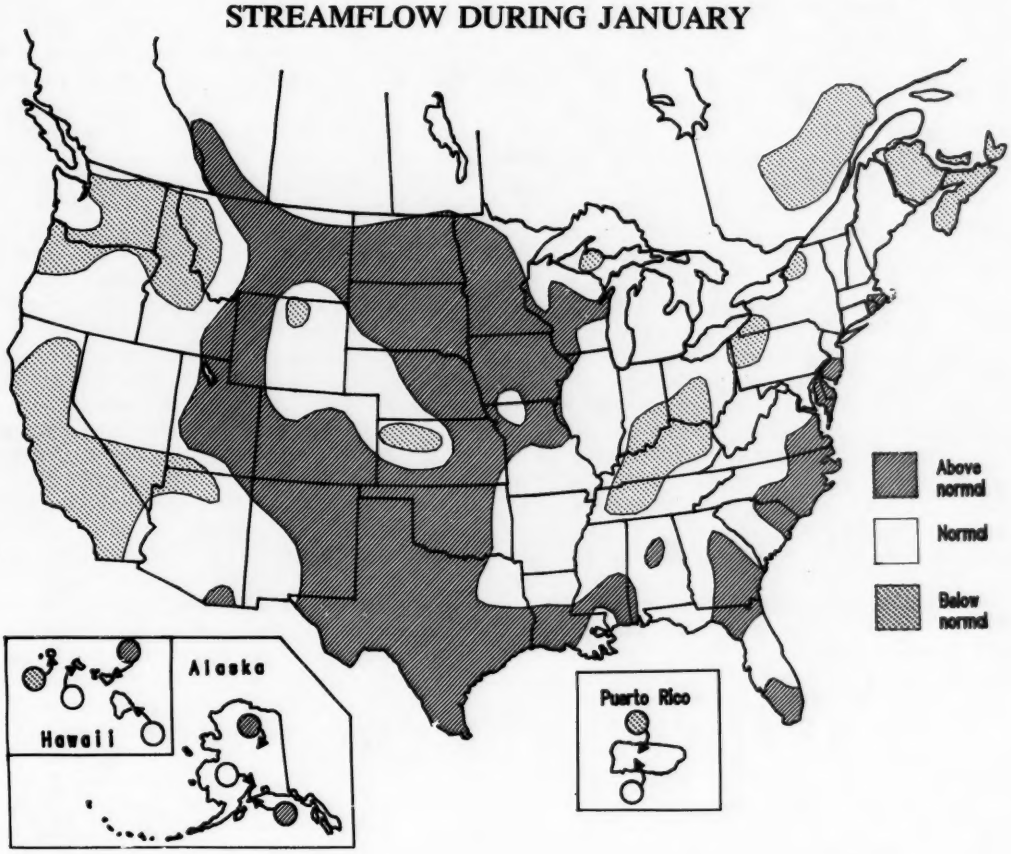
National Water Conditions

UNITED STATES
Department of the Interior
Geological Survey

CANADA
Department of the Environment
Water Resources Branch

JANUARY 1987

STREAMFLOW DURING JANUARY



Total January streamflow at 190 index streamflow stations was down 27 percent from that for December at the same stations. About 82 percent of the stations reporting for January had flows in the normal to above-normal range, compared to 89 percent in those ranges for December. Record-high monthly means occurred at six index stations, the most notable being that for the St. Lawrence River at Cornwall, Ontario, near Massena, New York—298,700 cubic feet per second. Streamflow at all eight index stations in the Hudson Bay basin for the last 26 months is featured this month.

Contents of 85 percent of reporting reservoirs were near or above average for the end of January, compared with 87 percent for the end of December.

Lake Erie averaged a January record high of 574.62 feet above National Geodetic Vertical Datum (NGVD) of 1929.

The elevation of Utah's Great Salt Lake was at 4,211.40 feet above NGVD of 1929 after rising 0.20 foot during the month.

SURFACE-WATER CONDITIONS DURING JANUARY 1987

January streamflow generally increased seasonally in Oregon, California, Mississippi, Alabama, Florida, Georgia, and South Carolina, with contraseasonal increases occurring only in Saskatchewan and Oklahoma. Flow changed variably in Hawaii, British Columbia, Arkansas, North Carolina, Virginia, Maryland, and Delaware, and decreased in the remainder of southern Canada, the United States, and Puerto Rico. Decreases were contraseasonal in Nevada, Arizona, South Dakota, Louisiana, Tennessee, Kentucky, Indiana, Ohio, West Virginia, and Rhode Island; variable in Washington, New Mexico, Texas, Illinois, and Pennsylvania; and seasonal in all other areas. The persistence/change map on page 3 shows where streamflow has persisted in the above- or below-normal range from December to January and also where streamflow has moved into the above- or below-normal range for January after being in a different range for December. The table below the map shows areal streamflow range conditions for the 191 index stations reporting data for January and compares total flow of the 190 stations reporting data for both December and January. Streamflow was in normal to above-normal range at about 82 percent of the 191 index stations in southern Canada, the United States, and Puerto Rico, compared to the 89 percent in those ranges for last month.

January precipitation (see maps on page 4) was generally an inch or more above average from the central gulf coast to northern Florida, northeastward to Maine, and also in southern Alaska, according to provisional data from the National Weather Service. Precipitation was an inch or more below average in an area from West Virginia to Texas, in southern Florida, in parts of the Pacific Norhwest, and also in most of Hawaii. Precipitation exceeded 7 inches in 24 cities, with record-high amounts for the month falling at: Montgomery, Alabama (7.78 inches), Augusta, Georgia (8.91 inches), Cape Hatteras, North Carolina (10.57 inches), Charleston, South Carolina (7.22 inches), Norfolk, Virginia (9.94 inches), and Casper, Wyoming (1.44 inches). Quillayute, Washington, had a below-average (−1.04 inches) 14.04 inches of precipitation during the month, the highest precipitation recorded at any of the 200 sites in the network. The February through March outlook maps for both temperature and precipitation are shown on page 4.

Record-high monthly means (see table on page 4) occurred at six index stations from North Carolina to Alaska, the most notable being that for the St. Lawrence River at Cornwall, Ontario, near Massena, New York—298,700 cubic feet per second (cfs), exceeding the 263,000 cfs of 1946—the fifth consecutive month of record-setting highs at that site. Flows at this station have been in the above-normal range for 24 consecutive months, but flow at monthend was only 240,000 cfs. Lake Erie averaged a January record high of 574.62 feet above National Geodetic Vertical Datum (NGCD) of 1929, exceeding the 573.96-foot average of 1973 (graph on page 9).

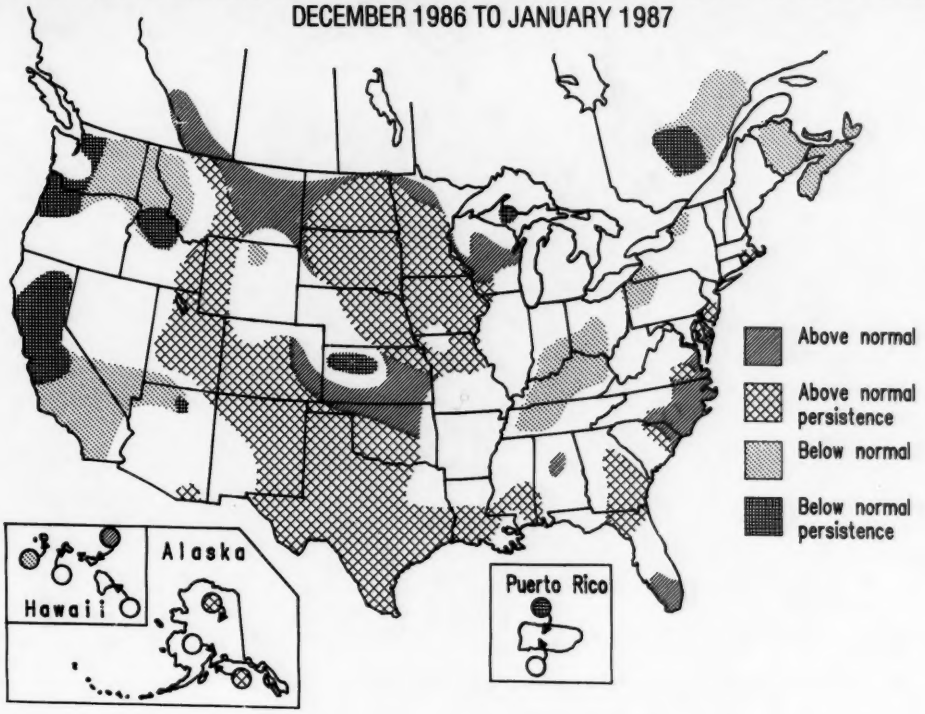
The locations of the eight streamflow index stations in the Hudson Bay basin are shown on page 4 with hydrographs of streamflow at the sites shown on page 5. This basin spans three-fourths of the continent from west to east with most of it lying in Canada. Streamflow at these sites has generally been in the normal to above-normal range, with persistently above-normal flows only on the Buffalo River (Minnesota) amd the Red River of the North (Minnesota-South Dakota-North Dakota). Drainage areas at the eight sites range from 858 square miles (Bow River at Banff, Alberta, Canada) to 30,100 square miles (Red River of the North at Grand Forks, North Dakota).

Contents of 85 percent of reporting reservoirs were near or above average for the end of January, compared with 87 percent for the end of December. Most reporting reservoirs in the Carolinas, Georgia, the Tennessee Valley, Oklahoma, Texas, Colorado, Nevada, Arizona, and New Mexico had contents significantly above average for the end of December. The only reservoirs with both significant declines in contents during the month and significantly below-average contents for the end of the month were the "Seven Reservoir System" (Maine), Lake Francis (Pennsylvania), Boise River (all-time low contents of 6 percent of capacity) and Coeur d'Alene Lake (Idaho), and Lake Chelan (Washington). Graphs of contents for seven reservoirs are shown on page 6 with contents for the 100 reporting reservoirs given on page 7.

The combined flow of the 3 largest rivers in the lower 48 States—Mississippi, St. Lawrence, and Columbia—averaged 949,000 cfs during January, 4.6 percent below median, and 32 percent below last month's flow. Individual flows of these three rivers are included in the Flow of Large Rivers table on page 8. Dissolved solids and water temperatures at five of the large river stations are given on page 9. The level of Utah's Great Salt Lake was 4,211.40 feet above NGVD of 1929 on January 31 after rising 0.20 foot during the month.

CONTENTS

PERSISTENCE IN, OR MOVEMENT INTO, THE BELOW—NORMAL OR ABOVE—NORMAL FLOW RANGE: DECEMBER 1986 TO JANUARY 1987



SUMMARY OF JANUARY 1987 STREAMFLOW

[Flow ranges]

Area	Below normal range		Normal range		Above normal range		Number of stations	
	No.	Percent	No.	Percent	No.	Percent	Reporting data	Missing data
Conterminous United States.	26	16.0	79	48.4	58	35.6	*163	0
Alaska, Hawaii, and Puerto Rico.	2	20.0	4	40.0	4	40.0	10	0
United States and Puerto Rico.	28	16.2	83	48.0	62	35.8	*173	0
Southern Canada.....	7	38.9	10	55.6	1	5.5	18	0
Conterminous United States and southern Canada.	33	18.2	89	49.2	59	32.6	*181	0
All sites.....	35	18.3	93	48.7	63	33.0	*191	0

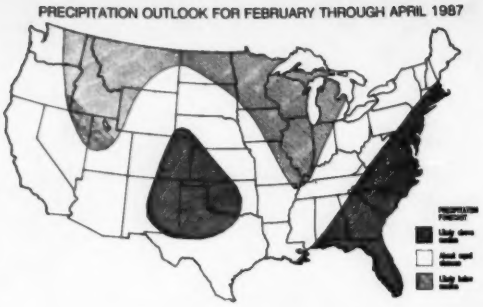
*Little Colorado River near Cameron, Arizona dropped as index station—record discontinued.

[Comparison of total monthly means with total monthly medians and last month's total monthly means]

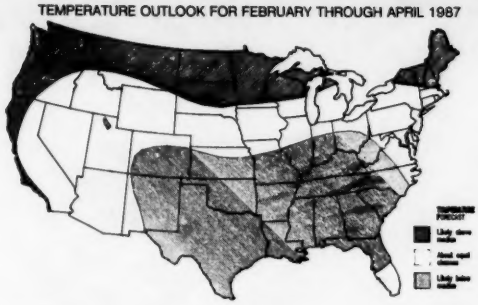
Total of January means (190 sites).....	1,876,180 CFS
Total of January medians (190 sites).....	1,854,060 CFS
Total of last month's means (190 sites).....	*2,586,100 CFS
Total of January means compared to total of medians.....	+1.2 Percent
Total of January means compared to total of last month's means.....	−27 Percent

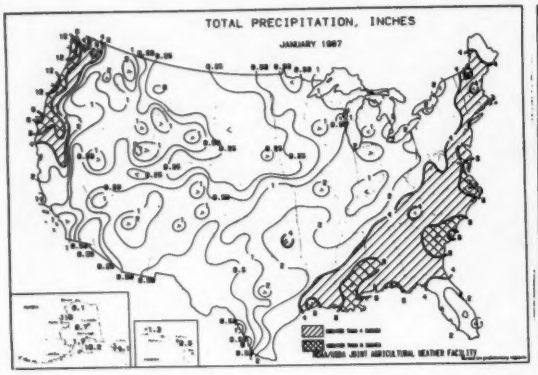
*Revised.

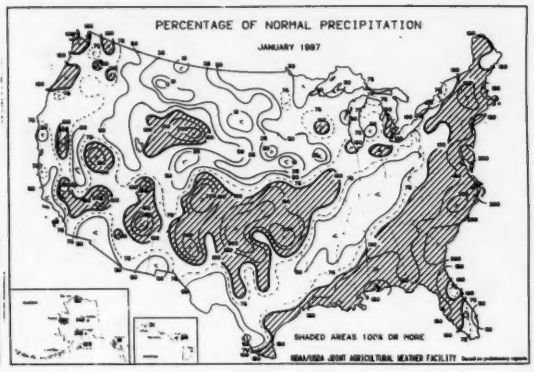
PRECIPITATION OUTLOOK FOR FEBRUARY THROUGH APRIL 1987



TEMPERATURE OUTLOOK FOR FEBRUARY THROUGH APRIL 1987



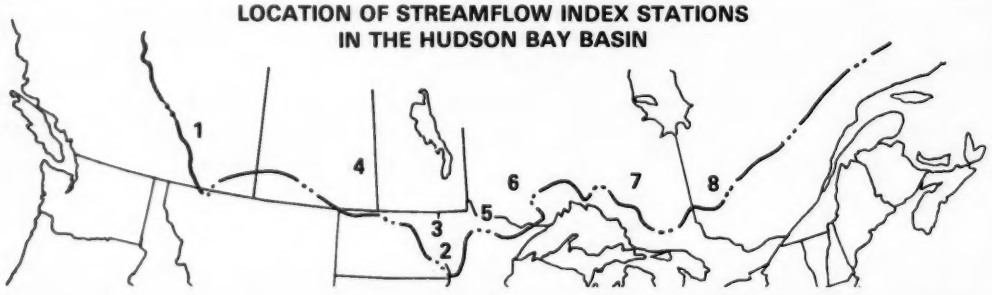




NEW MAXIMUMS DURING JANUARY 1987 AT STREAMFLOW INDEX STATIONS

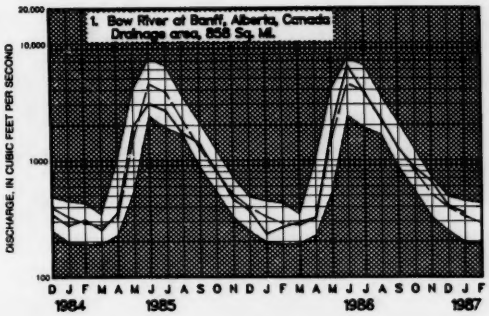
Station number	Stream and place of determination	Drainage area (square miles)	Years of record	Previous January maximums (period of record)		January 1987			
				Monthly mean in cfs (year)	Daily mean in cfs (year)	Monthly mean in cfs	Percent of median	Daily mean in cfs	Day
02091500	Contentnea Creek at Hookerton, N.C.	729	58	2,429 (1936)	6,680 (1954)	2,568	237	8,330	26
02317500	Alapaha River at Statenville, Ga.	1,400	55	4,218 (1967)	8,400 (1964)	5,027	462	11,400	31
04264331	St. Lawrence River at Cornwall, Ontario, near Massena, N.Y.	298,800	126	267,000 (1886)	310,000 (1980)	298,700	130	361,000	3,7
07378500	Amite River near Denham Springs, La.	1,280	48	7,346 (1974)	35,800 (1950)	7,829	350	33,400	20
08408500	Delaware River near Red Bluff, N. Mex.	689	50	7.57 (1942)	12 (1938)	8.8	346	9.10	21
15514000	Chena River at Fairbanks, Alaska	1,980	38	563 (1968)	700 (1986)	617	195	740	1

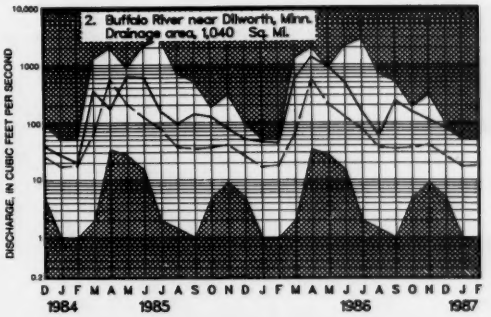
LOCATION OF STREAMFLOW INDEX STATIONS IN THE HUDSON BAY BASIN

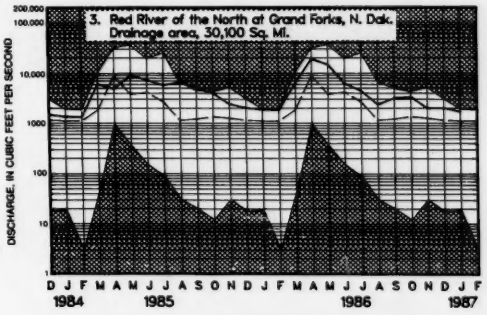


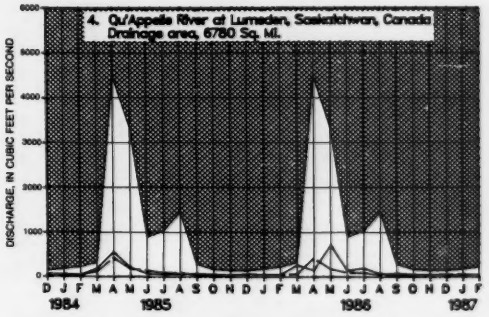
HYDROGRAPHS FOR STREAMFLOW INDEX STATIONS IN THE HUDSON BAY BASIN

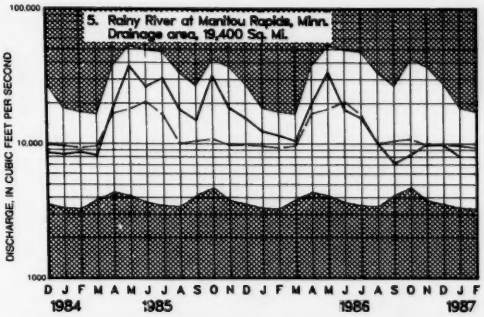
Unshaded area indicates range between highest and lowest record for the month. Dashed line indicates median of monthly values for reference period, 1951–80. Heavy line indicates mean for current period.

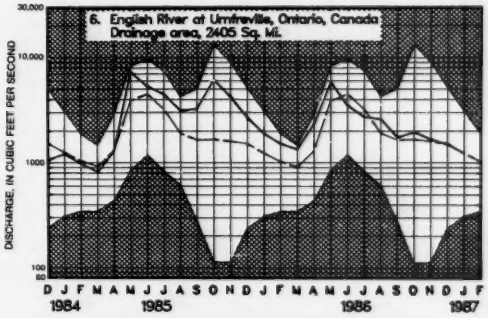


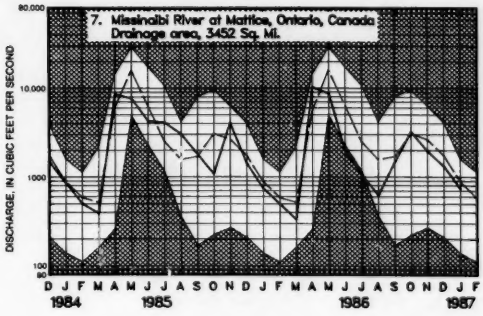


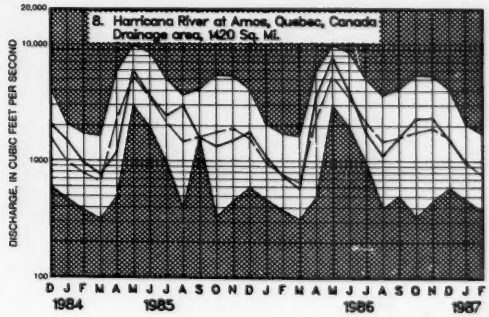




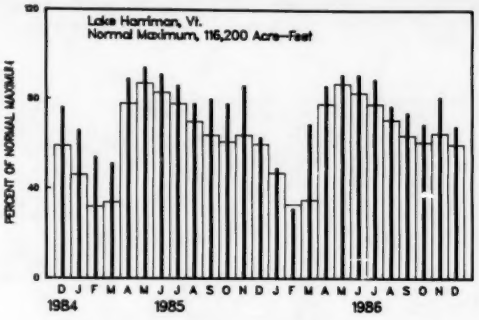


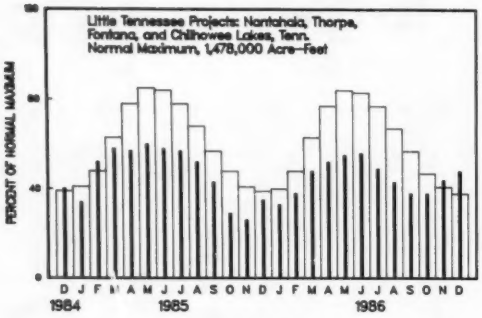


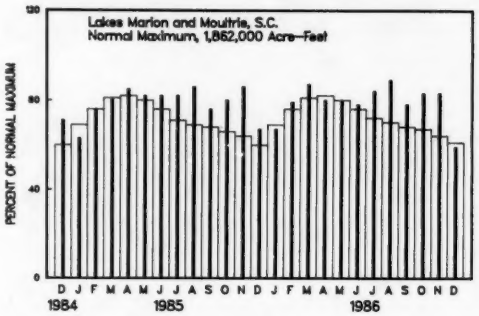


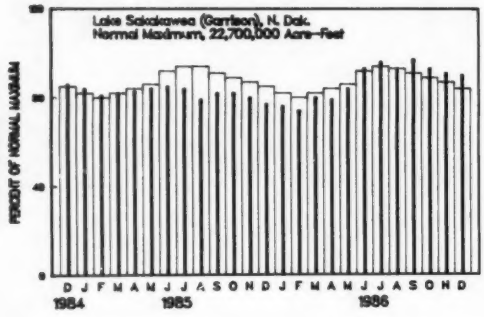


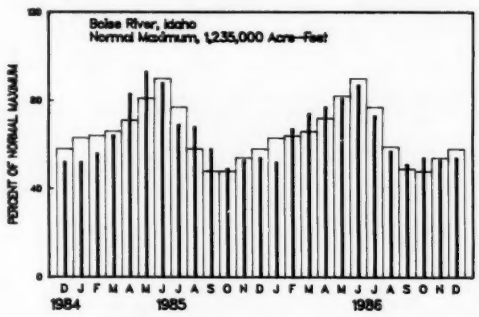
USABLE CONTENTS OF SELECTED RESERVOIRS AND RESERVOIR SYSTEMS

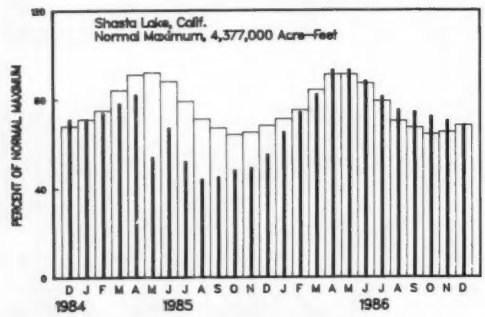


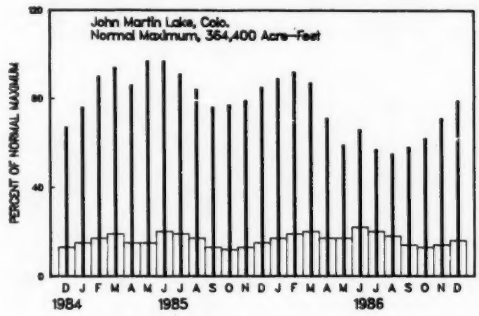












NATIONAL WATER CONDITIONS

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USABLE CONTENTS OF SELECTED RESERVOIRS NEAR END OF JANUARY 1987

[Contents are expressed in percent of reservoir capacity. The usable storage capacity of each reservoir is shown in the column headed "Normal maximum."]

Reservoir Principal uses: F–Flood control I–Irrigation M–Municipal P–Power R–Recreation W–Industrial	Percent of normal maximum				Normal maximum[a] (acre-feet)
	End of Jan. 1987	End of Jan. 1986	Average for end of Jan.	End of Dec. 1986	
NOVA SCOTIA					
Rossignol, Mulgrave, Falls Lake, St. Margaret's Bay, Black, and Ponhook Reservoirs(P)	40	. . .	57	42	[b]226,300
QUEBEC					
Allard (P)	60	52	46	83	280,600
Gouin (P)	78	66	59	89	6,954,000
MAINE					
Seven reservoir systems (MP)	43	56	49	55	4,107,000
NEW HAMPSHIRE					
First Connecticut Lake (P)	41	31	36	57	76,450
Lake Francis (FPR)	45	46	51	75	99,310
Lake Winnipesaukee (PR)	62	73	58	75	165,700
VERMONT					
Harriman (P)	45	49	47	68	116,200
Somerset (P)	64	56	59	85	57,390
MASSACHUSETTS					
Cobble Mountain and Borden Brook (MP)	76	83	71	78	77,920
NEW YORK					
Great Sacandaga Lake (FPR)	42	62	45	55	786,700
Indian Lake (FMP)	71	77	54	76	103,300
New York City reservoir system (MW)	87	79	84	89	1,680,000
NEW JERSEY					
Wanaque (M)	94	101	75	93	85,100
PENNSYLVANIA					
Allegheny (FPR)	31	29	30	32	1,180,000
Pymatuning (FMR)	72	90	83	73	188,000
Raystown Lake (FR)	67	68	56	68	761,900
Lake Wallenpaupack (PR)	58	66	53	75	157,800
MARYLAND					
Baltimore municipal system (M)	71	72	86	66	261,900
NORTH CAROLINA					
Bridgewater (Lake James) (P)	91	87	79	95	288,800
Narrows (Badin Lake) (P)	91	90	96	85	128,900
High Rock Lake (P)	61	18	66	79	234,800
SOUTH CAROLINA					
Lake Murray (P)	89	79	66	85	1,614,000
Lakes Marion and Moultrie (P)	76	67	69	59	1,862,000
SOUTH CAROLINA—GEORGIA					
Clark Hill (FP)	82	66	60	52	1,730,000
GEORGIA					
Burton (PR)	80	72	57	89	104,000
Sinclair (MPR)	96	88	83	88	214,000
Lake Sidney Lanier (FMPR)	48	50	53	42	1,686,000
ALABAMA					
Lake Martin (P)	86	72	68	73	1,375,000
TENNESSEE VALLEY					
Clinch Projects: Norris and Melton Hill Lakes (FPR)	41	26	34	41	2,293,000
Douglas Lake (FPR)	23	11	14	16	1,394,000
Hiwassee Projects: Chatuge, Nottely, Hiwassee, Apalachia, Blue Ridge, Ocoee 3, and Parksville Lakes (FPR)	52	46	42	53	1,012,000
Holston Projects: South Holston, Watauga, Boone, Fort Patrick Henry, and Cherokee Lakes (FPR)	46	37	34	46	2,880,000
Little Tennessee Projects: Nantahala, Thorpe, Fontana, and Chilhowee Lakes (FPR)	47	33	40	48	1,478,000
WISCONSIN					
Chippewa and Flambeau (PR)	60	50	44	70	365,000
Wisconsin River (21 reservoirs) (PR)	40	63	35	65	399,000
MINNESOTA					
Mississippi River headwater system (FMR)	27	20	20	31	1,640,000
NORTH DAKOTA					
Lake Sakakawea (Garrison) (FIPR)	86	76	82	90	22,700,000
SOUTH DAKOTA					
Angostura (I)	90	50	74	88	127,600
Belle Fourche (I)	68	29	49	63	185,200
Lake Francis Case (FIP)	66	64	65	54	4,834,000
Lake Oahe (FIP)	80	77	. . .	82	22,530,000
Lake Sharpe (FIP)	100	98	98	100	1,725,000
Lewis and Clark Lake (FIP)	91	94	93	91	432,000
NEBRASKA					
Lake McConaughy (IP)	81	82	73	81	1,948,000
OKLAHOMA					
Eufaula (FRP)	107	94	84	103	2,378,000
Keystone (FPR)	86	81	86	103	661,000
Tenkiller Ferry (FPR)	106	103	90	106	628,200
Lake Altus (FIMR)	100	24	47	100	133,000
Lake O'The Cherokees (FPR)	88	90	79	96	1,492,000
OKLAHOMA—TEXAS					
Lake Texoma (FMPRW)	100	92	87	99	2,722,000
TEXAS					
Bridgeport (IMW)	94	78	46	92	386,400
Canyon (FMR)	100	98	79	112	385,600
International Amistad (FIMPW)	84	72	84	82	3,497,000
International Falcon (FIMPW)	72	30	73	63	2,668,000
Livingston (IMW)	103	101	88	104	1,788,000
Possum Kingdom (IMPRW)	94	89	95	96	570,200
Red Bluff (PI)	83	24	30	77	307,000
Toledo Bend (P)	91	90	84	95	4,472,000
Twin Buttes (FIM)	50	12	30	45	177,800
Lake Kemp (IMW)	101	92	85	102	268,000
Lake Meredith (FWM)	29	30	37	29	796,900
Lake Travis (FIMPRW)	103	94	80	110	1,144,000
MONTANA					
Canyon Ferry (FIMPR)	76	74	81	82	2,043,000
Fort Peck (FPR)	85	73	82	85	18,910,000
Hungry Horse (FIPR)	70	67	68	76	3,451,000
WASHINGTON					
Ross (PR)	57	57	54	76	1,052,000
Franklin D. Roosevelt Lake (IP)	94	100	83	94	5,022,000
Lake Chelan (PR)	38	42	45	54	676,100
Lake Cushman (PR)	42	64	81	46	359,500
Lake Merwin (P)	101	100	97	100	245,600
IDAHO					
Boise River (4 reservoirs) (FIP)	6	52	62	54	1,235,000
Coeur d'Alene Lake (P)	16	32	49	35	238,500
Pend Oreille Lake (FP)	39	40	53	35	1,561,000
IDAHO—WYOMING					
Upper Snake River (8 reservoirs) (MP)	57	55	66	56	4,401,000
WYOMING					
Boysen (FIP)	78	74	71	82	802,000
Buffalo Bill (IP)	64	64	65	64	421,300
Keyhole (F)	34	29	43	34	193,800
Pathfinder, Seminoe, Alcova, Kortes, Glendo, and Guernsey Reservoirs (I)	69	62	50	68	3,056,000
COLORADO					
John Martin (FIR)	87	89	18	79	364,400
Taylor Park (IR)	72	66	55	72	106,200
Colorado–Big Thompson project (I)	82	74	57	82	730,300
COLORADO RIVER STORAGE PROJECT					
Lake Powell; Flaming Gorge, Fontenelle, Navajo, and Blue Mesa Reservoirs (IFPR)	84	87	. . .	88	31,620,000
UTAH—IDAHO					
Bear Lake (IPR)	74	74	58	75	1,421,000
CALIFORNIA					
Folsom (FIP)	45	72	55	48	1,000,000
Hetch Hetchy (MP)	36	49	33	42	360,400
Isabella (FIR)	43	36	28	43	568,100
Pine Flat (FI)	61	45	52	58	1,001,000
Clair Engle Lake (Lewiston) (P)	74	64	76	73	2,438,000
Lake Almanor (P)	73	67	51	69	1,036,000
Lake Berryessa (FIMW)	83	76	84	83	1,600,000
Millerton Lake (FI)	35	82	66	31	503,200
Shasta Lake (FIPR)	69	65	71	68	4,377,000
CALIFORNIA—NEVADA					
Lake Tahoe (IPR)	66	63	51	64	744,600
NEVADA					
Rye Patch (I)	71	66	58	69	194,300
ARIZONA—NEVADA					
Lake Mead and Lake Mohave (FIMP)	94	89	70	93	27,970,000
ARIZONA					
San Carlos (IP)	79	90	25	77	935,100
Salt and Verde River system (IMPR)	84	82	44	84	2,019,100
NEW MEXICO					
Conchas (FIR)	98	86	79	96	330,100
Elephant Butte and Caballo (FIPR)	94	91	35	96	2,442,000

[a] 1 acre-foot = 0.04356 million cubic feet = 0.326 million gallons = 0.504 cubic feet per second day.
[b] Thousands of kilowatt-hours (the potential electric power that could be generated by the volume of water in storage).

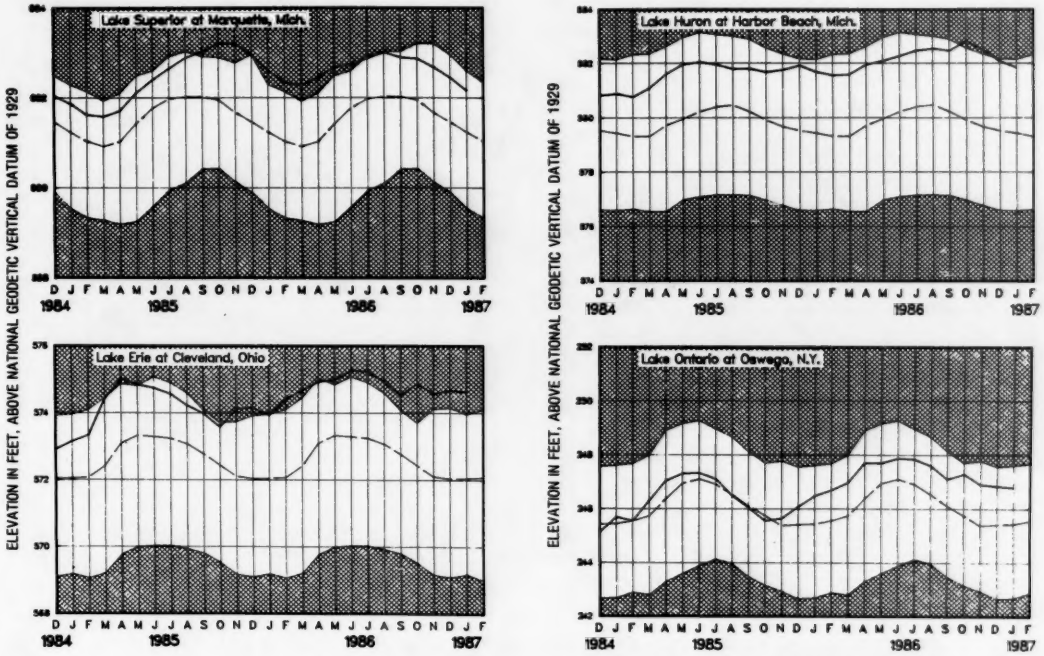
FLOW OF LARGE RIVERS DURING JANUARY 1987

Station number	Stream and place of determination	Drainage area (square miles)	Average discharge through September 1980 (cubic feet per second)	January 1987					
				Monthly mean discharge (cubic feet per second)	Percent of median monthly discharge, 1951—80	Change in discharge from previous month (percent)	Discharge near end of month		
							Cubic feet per second	Million gallons per day	Date
01014000	St. John River below Fish River at Fort Kent, Maine	5,690	9,647	2,797	99	−30	1,900	1,230	31
01318500	Hudson River at Hadley, N.Y.	1,664	2,909	1,650	94	−44	1,610	1,040	31
01357500	Mohawk River at Cohoes, N.Y.	3,456	5,734	3,640	81	−52	2,900	1,870	31
01463500	Delaware River at Trenton, N.J.	6,780	11,750	10,110	97	−41	8,670	5,603	31
01570500	Susquehanna River at Harrisburg, Pa.	24,100	34,530	27,100	79	−49	27,500	17,770	24
01646500	Potomac River near Washington, D.C.	11,560	[1]11,490	[1]11,800	90	−10	10,500	6,790	31
02105500	Cape Fear River at William O. Huske Lock near Tarheel, N.C.	4,810	5,005	11,700	159	+466	12,000	7,800	31
02131000	Pee Dee River at Peedee, S.C.	8,830	9,851	17,600	125	+81	32,400	20,940	29
02226000	Altamaha River at Doctortown, Ga.	13,600	13,880	43,290	265	+111	76,100	49,180	29
02320500	Suwannee River at Branford, Fl.	7,880	6,987	14,500	288	+165	22,100	14,280	31
02358000	Apalachicola River at Chattahoochee, Fl.	17,200	22,570	22,100	76	+8	37,800	24,430	30
02467000	Tombigbee River at Demopolis lock and dam near Coatopa, Ala.	15,400	23,300	47,970	129	+39	46,000	29,700	30
02489500	Pearl River near Bogalusa, La.	6,630	9,768	21,240	217	−6	35,200	22,750	31
03049500	Allegheny River at Natrona, Pa.	11,410	[1]19,480	[1]14,600	65	− 62	7,360	4,756	26
03085000	Monongahela River at Braddock, Pa.	7,337	[1]12,510	[1]15,780	83	− 17	39,600	25,590	22
03193000	Kanawha River at Kanawha Falls, W.Va.	8,367	12,590	14,550	91	−24	14,400	9,310	27
03234500	Scioto River at Higby, Ohio.	5,131	4,547	2,143	38	−77	1,610	1,040	30
03294500	Ohio River at Louisville, Ky.[2]	91,170	116,00	122,400	80	−48	97,700	63,150	28
03377500	Wabash River at Mount Carmel, Ill.	28,635	27,220	14,860	58	−36	11,500	7,430	31
03469000	French Broad River below Douglas Dam, TN.	4,543	6,798	6,385	74	−18	. . .	. . .	. .
04084500	Fox River at Rapide Croche Dam, near Wrightstown, Wis.[2]	6,150	4,163	5,500	151	+41	6,839	4,420	31
04264331	St. Lawrence River at Cornwall, Ontario–near Massena, N.Y.[3]	298,800	242,700	298,700	130	−9	240,000	155,000	31
02NG001	St. Maurice River at Grand Mere, P.Q.	16,300	25,150	4,160	56	−42	22,900	14,800	30
05082500	Red River of the North at Grand Forks, N.Dak.	30,100	2,551	1,709	154	−16	1,480	956	28
05133500	Rainy River at Manitou Rapids, Minn.	19,400	11,830	8,000	83	−18	8,300	5,360	23
05330000	Minnesota River near Jordan, Minn.	16,200	3,402	2,432	500	−49	1,800	1,160	31
05331000	Mississippi River at St. Paul, Minn.	36,800	[1]10,610	10,120	209	−31	7,700	4,980	31
05365500	Chippewa River at Chippewa Falls, Wis.	5,600	5,100	2,646	88	−31	2,280	1,473	31
05407000	Wisconsin River at Muscoda, Wis.	10,300	8,617	7,390	122	−10	4,600	2,970	27
05446500	Rock River near Joslin, Ill.	9,551	5,873	5,740	157	−22	6,000	3,900	31
05474500	Mississippi River at Keokuk, Iowa.	119,000	62,620	51,470	150	−24	44,500	28,760	31
06214500	Yellowstone River at Billings, Mont.	11,796	7,038	3,040	121	−10	3,100	2,000	29
06934500	Missouri River at Hermann, Mo.	524,200	79,490	70,010	210	−48	68,600	44,340	30
07289000	Mississippi River at Vicksburg, Miss.[4]	1,140,500	576,600	584,800	91	−41	559,000	361,300	26
07331000	Washita River near Dickson, Okla.	7,202	1,368	3,450	975	+10	2,600	1,680	31
08276500	Rio Grande below Taos Junction Bridge, near Taos, N.Mex.	9,730	725	729	175	−22	799	516	31
09315000	Green River at Green River, Utah.	44,850	6,298	5,303	211	−9	5,130	3,315	26
11425500	Sacramento River at Verona, Calif.	21,257	18,820	11,550	41	+8	12,100	7,820	28
13269000	Snake River at Weiser, Idaho.	69,200	18,050	19,200	117	−15	16,000	10,300	31
13317000	Salmon River at White Bird, Idaho.	13,550	11,250	3,680	86	−9	4,250	2,746	31
13342500	Clearwater River at Spalding, Idaho.	9,570	15,480	3,210	45	−66	3,870	2,501	31
14105700	Columbia River at The Dalles, Oreg.[5]	237,000	[1]193,100	[1]65,500	76	−12	134,700	87,060	28
14191000	Willamette River at Salem, Oreg.	7,280	[1]23,510	[1]32,500	56	+39	63,100	40,780	28
15515500	Tanana River at Nenana, Alaska.	25,600	23,460	8,290	128	−6	8,000	5,200	31
08MF005	Fraser River at Hope, B.C.	83,800	96,290	35,660	101	+11	31,780	20,540	31

[1]Adjusted.
[2]Records furnished by Corps of Engineers.
[3]Records furnished by Buffalo District, Corps of Engineers, through International St. Lawrence River Board of Control. Discharges shown are considered to be the same as discharge at Ogdensburg, N.Y. when adjusted for storage in Lake St. Lawrence.
[4]Records of daily discharge computed jointly by Corps of Engineers and Geological Survey.
[5]Discharge determined from information furnished by Bureau of Reclamation, Corps of Engineers, and Geological Survey.

GREAT LAKES ELEVATIONS

Unshaded area indicates range between highest and lowest record for the month. Dashed line indicates median of monthly values for reference period, 1951–80. Heavy line indicates mean for current period. Data from National Ocean Service.



Provisional data; subject to revision

DISSOLVED SOLIDS AND WATER TEMPERATURES, FOR JANUARY 1987, AT DOWNSTREAM SITES ON FIVE LARGE RIVERS

Station number	Station name	January data of following calendar years	Stream discharge during month	Dissolved-solids concentration[a]		Dissolved-solids discharge[a]			Water temperature[b]		
			Mean (cfs)	Minimum (mg/L)	Maximum (mg/L)	Mean	Minimum	Maximum	Mean in °C	Minimum, in °C	Maximum, in °C
						(tons per day)					
01463500	Delaware River at Trenton, NJ (Morrisville, PA).	1987	10,110	89	116	2,880	2,190	3,670	2.0	0	4.5
		1945—86	12,760	62	201	....	758	20,800	...	0	7.5
		(Extreme yr)		(1951, 1960)	(1959)		(1981)	(1976)			
			[c]10,440								
07289000	Mississippi River at Vicksburg, MS.	1987	584,800	235	288	408,300	351,300	477,600	5.5	4.5	6.0
		1976—86	635,000	157	299	324,600	128,000	619,000	4.0	0	10.0
		(Extreme yr)		(1979)	(1981)		(1981)	(1985)			
			[c]645,700								
03612500	Ohio River at lock and dam 53, near Grand Chain, IL (streamflow station at Metropolis, IL).	*1987	259,000	174	228	....	66,200	228,000	...	3.5	4.5
		1955—86	355,700	98	382	....	28,500	448,000	...	0	10.0
		(Extreme yr)		(1973)	(1964)		(1956)	(1970)			
			[c]362,300								
06934500	Missouri River at Hermann, MO (60 miles west of St. Louis, MO).	1987	70,000	356	499	84,400	63,400	92,600	1.5	0	4.5
		1976—86	47,020	159	553	53,300	18,100	160,000	2.0	0	5.5
		(Extreme yr)		(1976)	(1977)		(1981)	(1985)			
			[c]33,290								
14128910	Columbia River at Warrendale, OR (streamflow station at The Dalles, OR).	1987	163,000	105	115	48,600	34,100	62,100	4.5	3.0	5.5
		1976—86	173,700	76	125	49,200	24,300	79,800	3.5	0	9.0
		(Extreme yr)		(1978)	(1983)		(1979)	(1984)			
			[c]86,480								

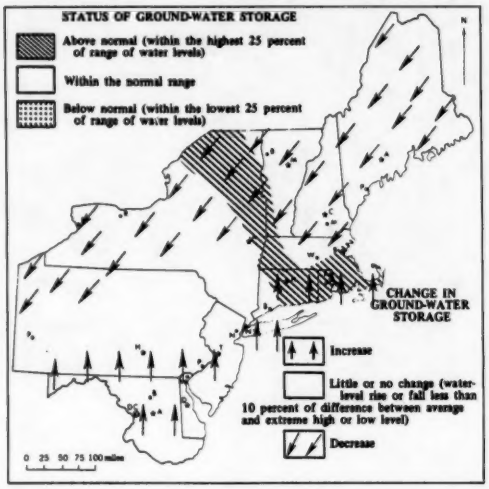
[a]Dissolved-solids concentrations, when not analyzed directly, are calculated on basis of measurements of specific conductance.
[b]To convert °C to °F: [(1.8 X °C) + 32] = °F.
[c]Median of monthly values for 30-year reference period, water years 1951—80, for comparison with data for current month.
*Dissolved-solids and water-temperature records are for 15 days only (January 9–23).

GROUND-WATER CONDITIONS DURING JANUARY 1987

Ground-water levels continued to rise in Maryland, Delaware, southern New Jersey, and also in much of southern New England. (See map.) Levels declined in northern parts of the Northeast, including Maine, New Hampshire, Vermont, and northern and western parts of New York State. Water levels near the end of January were in the normal range of winter levels in most of the region, but were above average in Rhode Island, southeastern and western Massachusetts, much of Connecticut, and northeastern New York State.

In the Southeastern States, ground-water levels rose in Virginia, North Carolina, Louisiana, and Mississippi. Water-level changes were mixed in other States. Water levels were above average in Kentucky and Virginia, and below average in Arkansas. Levels were mixed with respect to average in West Virginia, North Carolina, Louisiana, and Florida. A new low ground-water level for January was recorded in Tennessee in the key well at Memphis. New low levels for January also were reported in wells in Arkansas and in the Savannah area in the coastal plain of Georgia. The new January lows in all three States occurred even though water levels rose from December's levels.

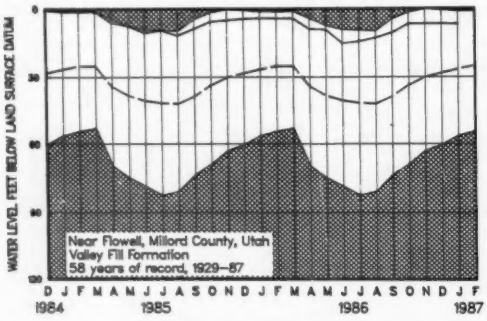
In the central and western Great Lakes States, ground-water levels rose in Indiana, showed mixed changes in Minnesota, and declined in Wisconsin, Michigan, Ohio, and Iowa. Water levels were above average in Iowa, near or above average in Wisconsin, and below average in

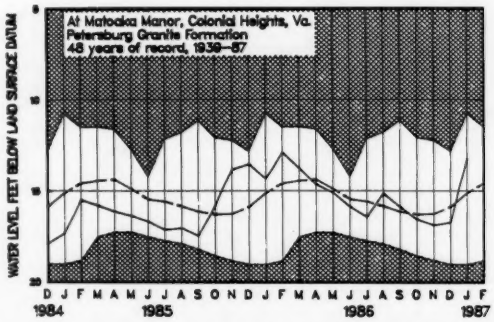


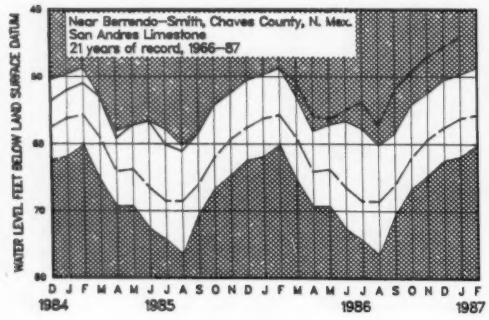
Map showing ground-water storage near end of January and change in ground-water storage from end of December to end of January.

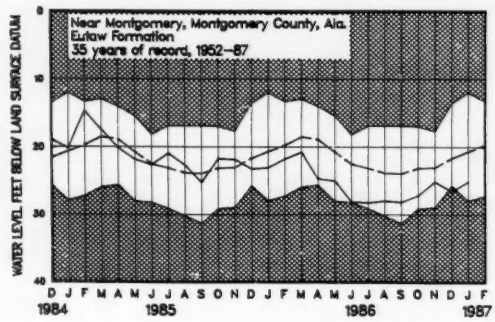
MONTH-END GROUND-WATER LEVELS IN KEY WELLS

Unshaded area indicates range between highest and lowest record for the month. Dashed line indicates average of monthly levels in previous years. Heavy line indicates level for current period.









Ohio. Levels were mixed with respect to average in Minnesota and Michigan.

In the Western States, ground-water levels rose in Arizona, and declined in North Dakota, Nebraska, and Utah, and in most of the key wells in Idaho. Changes were mixed in other Western States. Water levels were above average in North Dakota, and mixed with respect to average in other States. New high ground-water levels for January were recorded in Idaho, North Dakota, Nebraska, and Nevada. New January low levels were recorded in New Mexico and Texas. The level in the Berrendo-Smith observation well in the Roswell artesian basin in New Mexico rose to an all-time high level in 20 years of record for the third consecutive month. The new month-end high levels for January in Idaho, North Dakota, and Nebraska were established despite contrary water-level changes during the month. Likewise, the new January low reported in the key well at El Paso in Texas was established despite a net rise during the month.

Provisional data; subject to revision

WATER LEVELS IN KEY OBSERVATION WELLS IN SOME REPRESENTATIVE AQUIFERS IN THE CONTERMINOUS UNITED STATES—JANUARY 1987

Aquifer and Location	Water level in feet with reference to land-surface datum	Departure from average in feet	Net change in water level in feet since:		Year records began	Remarks
			Last month	Last year		
Glacial drift at Hanska, south-central Minnesota.	−6.14	+2.67	−0.44	+1.16	1942	
Glacial drift at Roscommon in north-central part of Lower Peninsula, Michigan.	−4.47	+0.43	−0.32	−0.42	1935	
Glacial drift at Marion, Iowa.....	−3.96	+2.35	−0.77	−0.46	1941	
Glacial drift at Princeton in northwestern Illinois.	−8.04	+5.04	−1.24	+0.11	1943	
Petersburg Granite, southeastern Piedmont near Fall Zone, Colonial Heights, Virginia.	−13.20	+1.97	+3.47	+1.11	1939	
Glacial outwash sand and gravel, Louisville, Kentucky (U.S. well no. 2).	−18.56	+6.81	−0.33	−1.06	1946	
500-foot sand aquifer near Memphis, Tennessee (U.S. well no. 2).	−105.26	−15.88	+0.19	−0.92	1941	January low.
Granite in eastern Piedmont Province, Chapel Hill, North Carolina (U.S. well no. 5).	−45.46	−2.34	+0.51	−3.56	1931	
Sparta Sand in Pine Bluff industrial area, Arkansas.	−231.10	−32.43	−3.20	−13.75	1958	
Eutaw Formation in the City of Montgomery, Alabama (U.S. well no. 4).	−25.1	−4.7	+1.4	−2.1	1952	
Limestone aquifer on Cockspur Island, Savannah area, Georgia (U.S. well no. 6).	−34.21	−7.93	+0.61	−1.85	1956	January low.
Sand and gravel in Puget Trough, Tacoma, Washington.	−101.01	+7.15	+1.01	+0.97	1952	
Pleistocene glacial outwash gravel, North Pole, northern Idaho (U.S. well no. 3).	−464.8	−3.8	−0.8	−3.7	1929	
Snake River Group: Snake River Plain Aquifer, at Eden, Idaho (U.S. well no. 4).	−120.6	−1.5	−1.3	+2.4	1957	
Alluvial valley fill in Flowell area, Millard County, Utah (U.S. well no. 9).	−6.69	+18.75	−0.21	−2.70	1929	
Alluvial sand and gravel, Platte River Valley, Ashland, Nebraska (U.S. well no. 6).	−3.70	+2.18	−1.10	+1.85	1935	January high.
Alluvial valley fill in Steptoe Valley, Nevada....	−7.17	+5.50	+0.21	+0.29	1950	January high.
Pleistocene terrace deposits in Kansas River valley, at Lawrence, northeastern Kansas.	−17.14	+4.00	−0.68	−0.04	1953	
Alluvium and Paso Robles clay, sand, and gravel, Santa Maria Valley, California	−116.06	+26.19	+0.37	−6.02	1957	
Valley fill, Elfrida area, Douglas, Arizona (U.S. well no. 15).	−102.9	−23.1	+0.4	+1.7	1951	
Hueco bolson, El Paso area, Texas.....	−265.60	−19.11	+0.72	−2.40	1965	January low.
Evangeline aquifer, Houston area, Texas.....	−315.51	−17.79	−2.95	+2.94	1965	

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